



# A Mission Management Application Suite for Airborne Science Operations

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A suite comprised of web-based tools for mission design, flight planning, aircraft visualization and tracking

This screenshot shows the RTMM Mission Designer interface. It features a map of the North America and the Gulf of Mexico with various flight paths and waypoints marked. The interface includes a sidebar for mission info, a list of aircraft and datasets, and buttons for previewing, updating, and saving the mission.

## Mission Design:

- Set geographic boundaries
- Set dates of campaign
- Intelligently select datasets
- Add web-based resources
- Upload mission branding

*The Mission Designer provides an interface to a database of assets and environmental data sets. The mission manager chooses the spatial and temporal domains, selects sensors and data sets to be used during the mission and publishes the mission. This published mission is then viewable within the Real Time Mission Monitor (RTMM).*

This screenshot shows the Waypoint Planning Tool interface. It displays a map of a hurricane with flight paths and waypoints. The interface includes multiple windows for setting flight parameters, displaying real-time imagery, and creating waypoints.

## Flight (Waypoint) Planning:

- Assemble aircraft flight plans
- Plan coincident observations
- Model and remote sensing background layers
- Provides numerous pre-defined flight patterns
- Choose from multiple aircraft
- Publish plan in several formats

*The Waypoint planning tool allows the scientist to plan flight tracks for the aircraft. Pre-defined flight patterns may be incorporated, and scaled or rotated to meet the mission needs. Various overlays are available. Once completed, the plan is published and vetted with the aircraft crew and is then viewable within the Real Time Mission Monitor.*

## Visualization and Tracking:

- User-configurable layout and tools for an integrated display
- Provides layering of several environmental parameters
- Real-time tracking of multiple aircraft
- Scientific collaboration through multiple chat sessions
- Aids scientists in decision support

This screenshot shows the RTMM Real Time Mission Monitor. It displays a map of the Caribbean and Gulf of Mexico with aircraft tracks and satellite imagery. The interface includes a chat window, a web browser for aircraft altitude charts, and a nadir camera view.

*The Real Time Mission Monitor has been used with numerous NASA airborne science field campaigns. The tool provides real time situational awareness, and fosters collaboration among scientists on the ground and those on the aircraft. Numerous aircraft may be tracked simultaneously. The scientist can configure the panels to one of many arrangements and can select which tool is portrayed within a panel.*